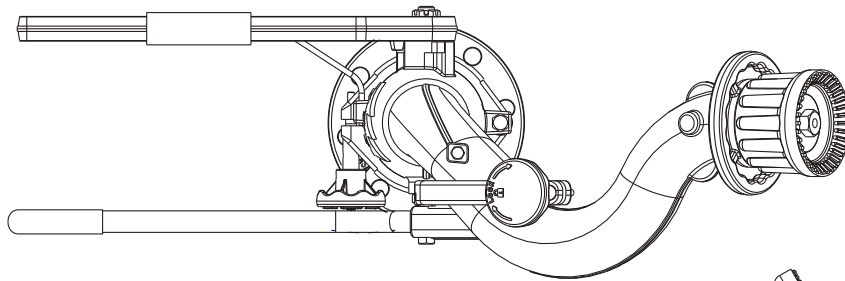




## INSTRUCTIONS FOR SAFE OPERATION AND MAINTENANCE

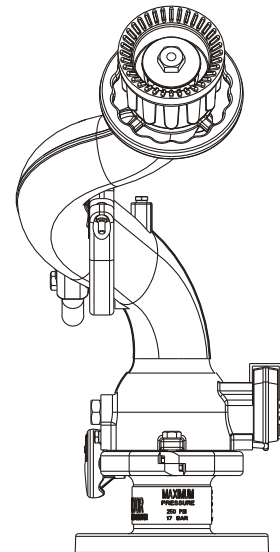
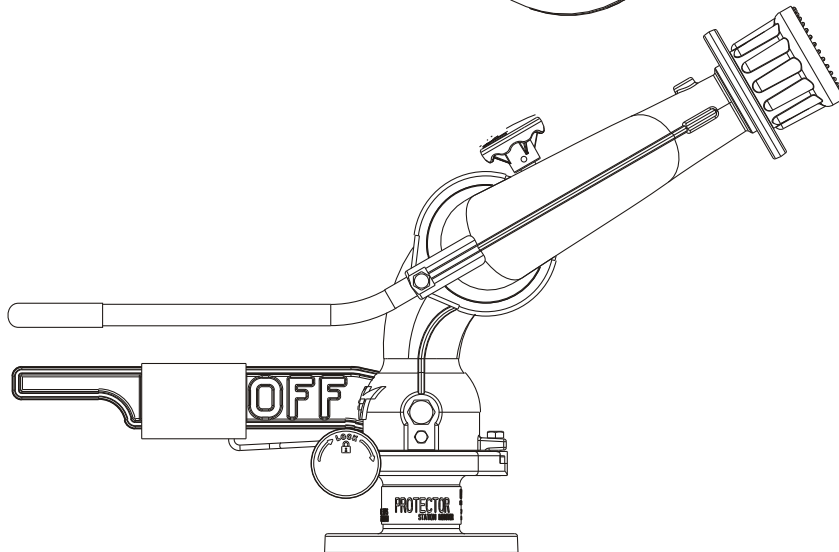
### **⚠ WARNING**

Read instruction manual before use. Operation of this device without understanding the manual and receiving proper training is a misuse of this equipment. A person who has not read and understood all operating and safety instructions is not qualified to operate the PROTECTOR Station Monitor.



Maximum flow is  
1250 GPM  
(4800 L/MIN)

Maximum inlet pressure is  
250 PSI (17 BAR)



Shown with optional valve  
and built-in nozzle.

*This instruction manual is intended to familiarize firefighters and maintenance personnel with the operation, servicing, and safety procedures associated with the PROTECTOR Station Monitor. This manual should be kept available to all operating and maintenance personnel.*

**TASK FORCE TIPS, Inc.**  
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## 1.0 MEANING OF SIGNAL WORDS

A safety related message is identified by a safety alert symbol and a signal word to indicate the level of risk involved with a particular hazard. Per ANSI standard Z535.4-1998 the definitions of the three signal words are as follows:



**DANGER** indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



**WARNING** indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



**CAUTION** indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

## 2.0 GENERAL INFORMATION

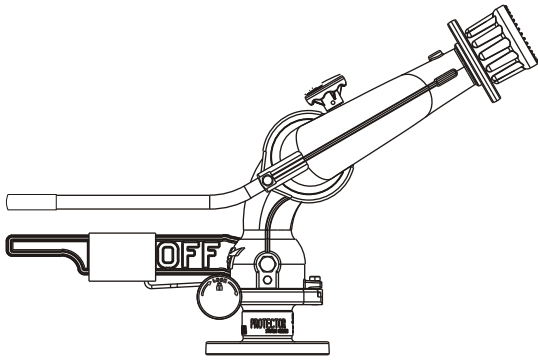


**This equipment is intended for use by trained personnel for firefighting. Its use for other purposes may involve hazards not addressed by this manual. Seek appropriate guidance and training to reduce risk of injury.**

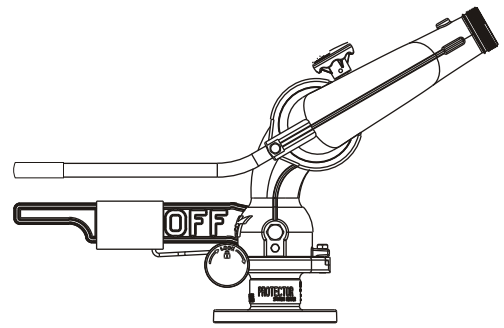
The Task Force Tips Protector is a simple and rugged fixed station monitor with many unique features. • Its unique (patent pending) waterway has low friction loss and delivers water to the nozzle with fewer twists and turns than a conventional monitor. • The optional built-in on/off valve with position indicator eliminates the the additional costly valve. • The Protector can be directly bolted to many common pipe flanges. • The outlet is available with various 2.5 inch male threads or with an integral fixed orifice fog nozzle with adjustable pattern control. • The integral nozzle is available in several flows. • A long stream straightening vane in the discharge section reduces turbulence. • The design requires no regular grease application. • Swiveling elements and seals (including valve seat) can be replaced in a few minutes with just one tool. • Threaded ports (1/4" NPT) are provided for drain valve and pressure gauge installation. • The Protector is available in UNC C83600 brass, with a baked-on powder coat finish, as well as powder coated hardcoat anodized ANSI 356.0-T6 aluminum. • The swivel clamps, 3 inch valve ball, trunnions and hardware are 18-8 stainless steel. • The monitor may be used to deliver water or foam streams.

## 2.1 STYLES AND OPTIONS

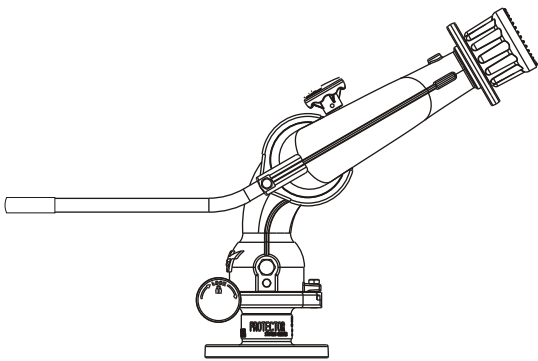
The Protector station monitor comes in four basic styles as shown in the figures below:



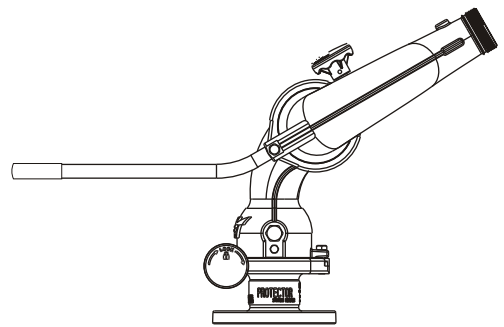
**FIG 1.1A Valve with Built-in Nozzle**



**FIG 1.1B Valve with Threaded Exit**



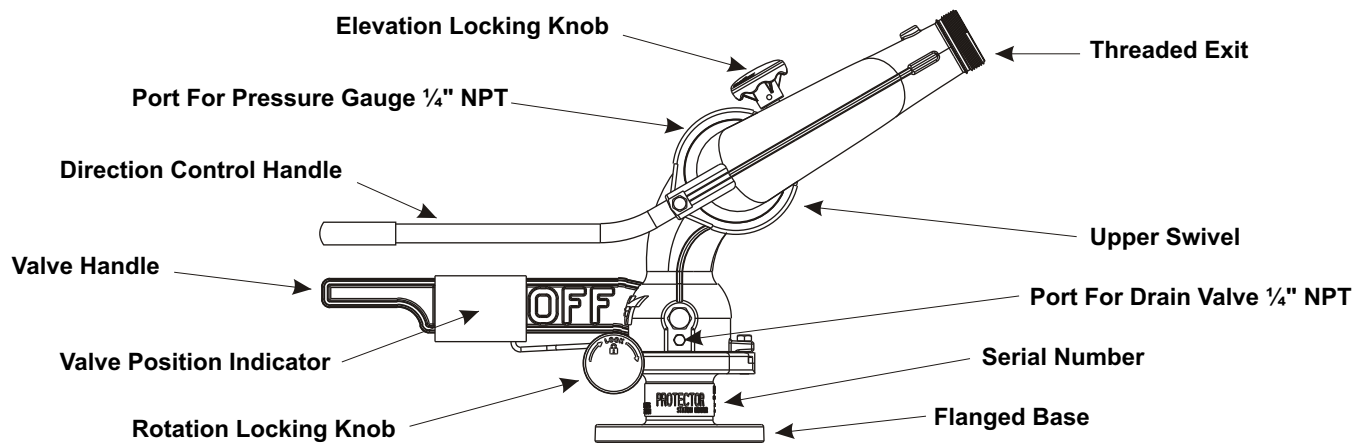
**FIG 1.1C No Valve with Built-in Nozzle**



**FIG 1.1D No Valve with Threaded Exit**

## 2.2 PART IDENTIFICATION

Figure 1.2 shows a Protector monitor with "Valve and Threaded Exit" and identifies the various parts and controls.



**FIG 1.2 Protector Monitor Parts**

## 2.3 OVERALL DIMENSIONS

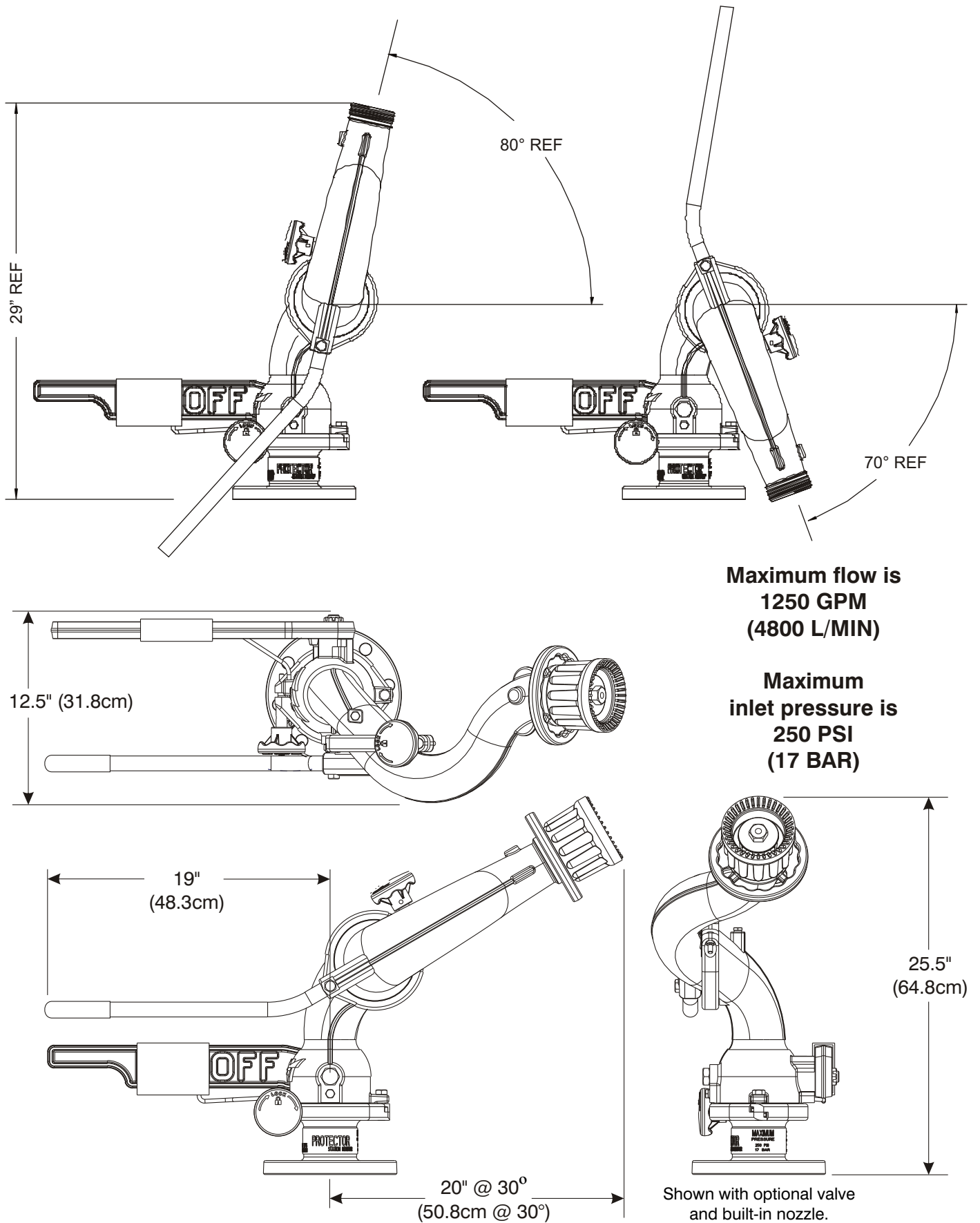


FIG 2.3 Overall Dimensions

### 3.0 INSTALLATION

#### 3.1 FLANGE SIZES

The table below gives the available flange designations and actual sizes. The designation is cast into the flange surface.

FITS FLANGE	OUTSIDE DIAMETER	THICKNESS	BOLT HOLE CIRCLE	NUMBER OF BOLTS	SIZE OF BOLTS	TORQUE ON BOLTS
3" ANSI 125/150	7.50"	0.75"	6.00"	4	5/8"	76-80 FT-LBS
4" ANSI 150	9.00"	0.94"	7.50"	8	5/8"	76-80 FT-LBS
4" ANSI 250/300	10.00"	1.25"	7.88"	8	3/4"	100-120 FT-LBS
DN80 PN16	200 mm	22 mm	160 mm	8	16 mm	100-107 NEWTON-METER
DN100 PN16	220 mm	22 mm	180 mm	8	16 mm	100-107 NEWTON-METER

#### 3.2 GENERAL MOUNTING

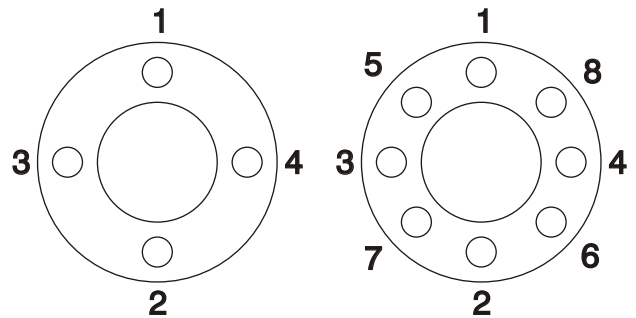
The Protector station monitor is installed to a riser pipe by a bolted flange joint. Check that no interference exists between the Protector and surrounding hardware that would limit its usefulness. If a valve is to be mounted under the Protector, check that no interference exists with the valve handle. If a butterfly valve is to be mounted under the Protector, check that no interference exists between the butterfly and the flanged base of the Protector when the valve is in its open position.

#### 3.3 BOLTED FLANGE JOINT

The use of flat faced flanges (without raised face) and full face gasket is recommended. Bolts should meet the requirements of high strength or intermediate strength bolting as defined in ASME B16.5-1996 sections 5.3.1 and 5.3.2. The flanged connection and gasket must withstand the internal pressure as well as shear and bending due to the nozzle reaction. Use a full face gasket per ASME 16.21-1992 or ISO 7483. Nozzle reaction can be as high as 950 lbs (1250 gpm at 225 psi) which would give a 1200 ft-lb bending moment at the flange joint (950 lbs times 1.25 ft). The tightening sequence of the bolts is shown in figure 2.3.

#### **WARNING**

Injury can occur from an inadequately supported monitor. The mounting must be capable of supporting the nozzle reaction force which can be as high as 950 lbs. This monitor is not intended for portable use. Flanges and pipe made from plastic are inadequate for monitor mounting and must not be used.



Tighten sequentially each bolt three times.

**FIG 2.3 Flange Bolt Tightening Sequence**

#### 3.4 WATER SUPPLY

The Protector (or any monitor) must have an adequate supply of water and pressure to be effective. Make sure that pump(s) and water supply are sufficient and reliable. See section 3.0 for Protector pressure loss. Use with salt water or brackish water will shorten the service life of any product due to corrosion.

#### **DANGER**

An inadequate supply of pressure and/or flow will cause an ineffective stream and can result in injury, death or loss of property.

#### 3.5 NOZZLE FOR THREADED EXIT

The Protector is available with 2.5 inch male threads (NH, BSP, or NPSH) for attachment of a nozzle. Greasing of threads before screwing on nozzle will reduce the chance of corrosion.

#### **CAUTION**

Nozzle threads must match threads on the protector. Mismatched or damaged threads may cause nozzle to leak or uncouple under pressure and could cause injury.

#### **CAUTION**

Do not couple aluminum to brass. Dissimilar metals coupled together can cause galvanic corrosion that can result in inability to unscrew the threads or complete loss of thread engagement.

### 3.6 PORT FOR DRAIN VALVE

The Protector has a 1/4" female NPT threaded port for installation of a drain valve. This port is located just above the lower swivel and is shipped from the factory with a pipe plug installed. A drain valve is required in environments, which will reach temperatures below freezing to eliminate the risk of ice forming in the Bell Casting. The Protector may become damaged if ice is allowed to form in the Bell Casting.

### 3.7 PORT FOR PRESSURE GAUGE

The Protector has a 1/4" female NPT threaded port for installation of a pressure gauge if desired. This port is located by the upper swivel and is shipped from the factory with a pipe plug installed. If a pressure gauge is installed, check that no interference exists between the gauge and the upper swivel locking knob.

## 4.0 PRESSURE LOSS

Figure 4.0 gives a graph of pressure loss through the Protector station monitor.

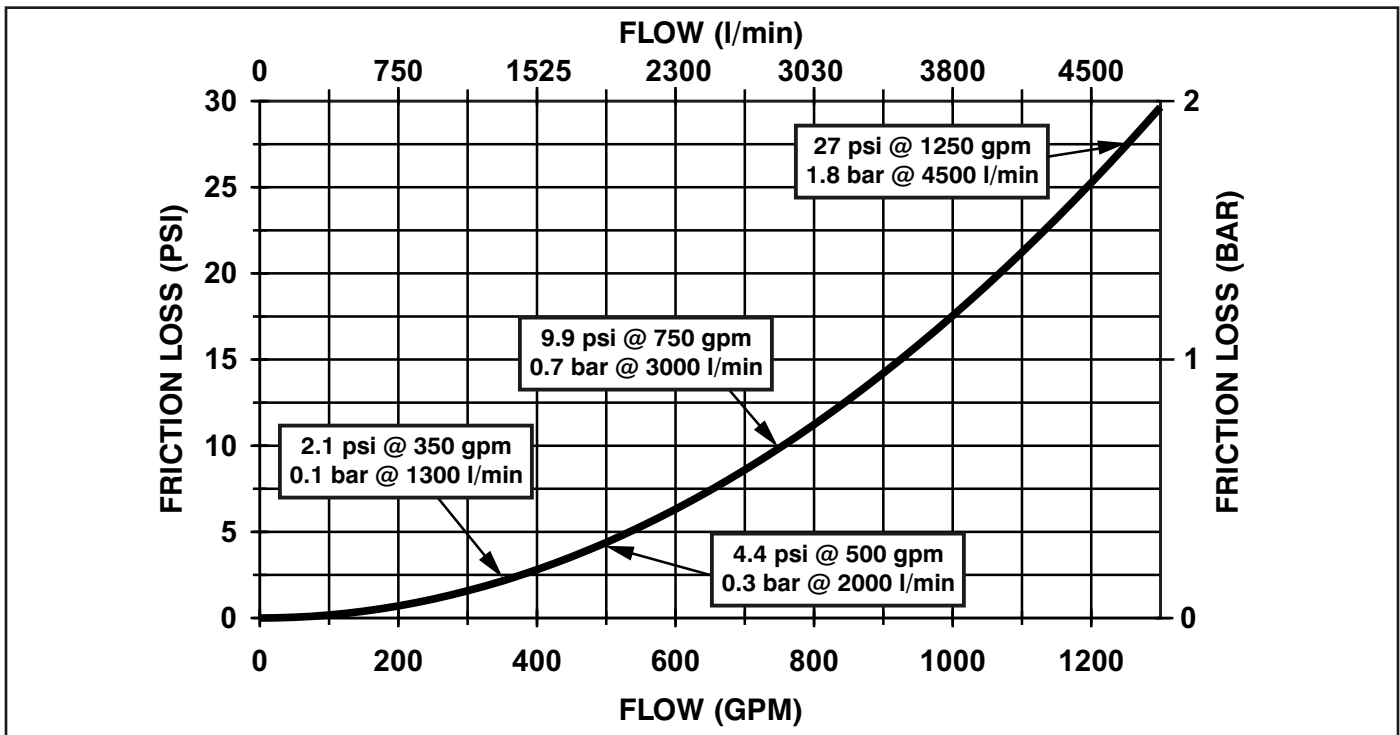


FIG 4.0 Protector Station Monitor Pressure Loss

## 4.1 VALVE OPERATION

In models equipped with a built-in valve, the flow is OFF when the valve handle is horizontal and ON when the handle is vertical. Parts are manufactured so that the valve cannot be assembled out of phase. A position indicator shows the valves position as "OFF" or "ON". The position that the valve is normally left in will depend upon your particular location's standard operating procedure. Operate the valve slowly to reduce water hammer.

## 4.2 SIDE TO SIDE ROTATION AND ROTATION LOCK

The side to side direction (rotation) of the stream is changed by pushing or pulling horizontally on the **direction control handle** (see figure 4.2). If the Protector is equipped with a built-in valve and the valve is in the OFF position (handle horizontal), the **valve handle** may be used to change the azimuth of the monitor. Twisting the **rotation locking knob** clockwise will increase the drag on the **lower swivel joint** to "lock" the monitor in a particular direction.

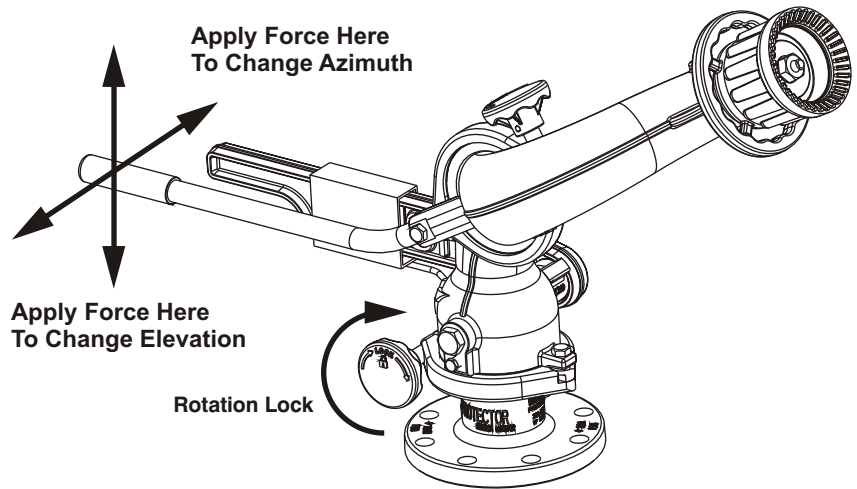


FIG. 4.2 Rotation and Elevation Control

## 4.3 ELEVATION CONTROL AND ROTATION LOCK

The up and down direction (elevation) of the stream is changed by pushing or pulling vertically on the **direction control handle** (see figure 4.2). Twisting the **elevation locking knob** clockwise will increase the drag on the **upper swivel joint** to "lock" the monitor at a particular elevation. Select discharge devices that do not exceed the 70 ft-lb locking capability of the elevation lock.



Master stream flows are very powerful and capable of causing injury and property damage. Make sure the monitor is pointing in a safe direction before water to the monitor is turned on. Use care in directing the stream.



Care must be taken when loosening elevation locking knob so nozzle does not swing down quickly. Keep one hand on direction control handle while loosening elevation control knob. Be prepared to exert force on direction control handle as knob is loosened.



When pressure is released, nozzle will swing down if locking knob is not adequately tightened.

## 5.0 PROTECTOR WITH BUILT-IN NOZZLE

### 5.1 BUILT-IN NOZZLE FLOW CHARACTERISTICS

The Protector is available with a built-in nozzle. This built-in nozzle is a fixed orifice fog nozzle. Available flows are 350, 500 and 750 GPM at 100 PSI. Flow characteristics are shown in figure 5.1. The pressures shown are at the base of the nozzle. Figure 5.2 gives the stream trajectory of each flow at 30 degrees elevation above horizontal and still air conditions.

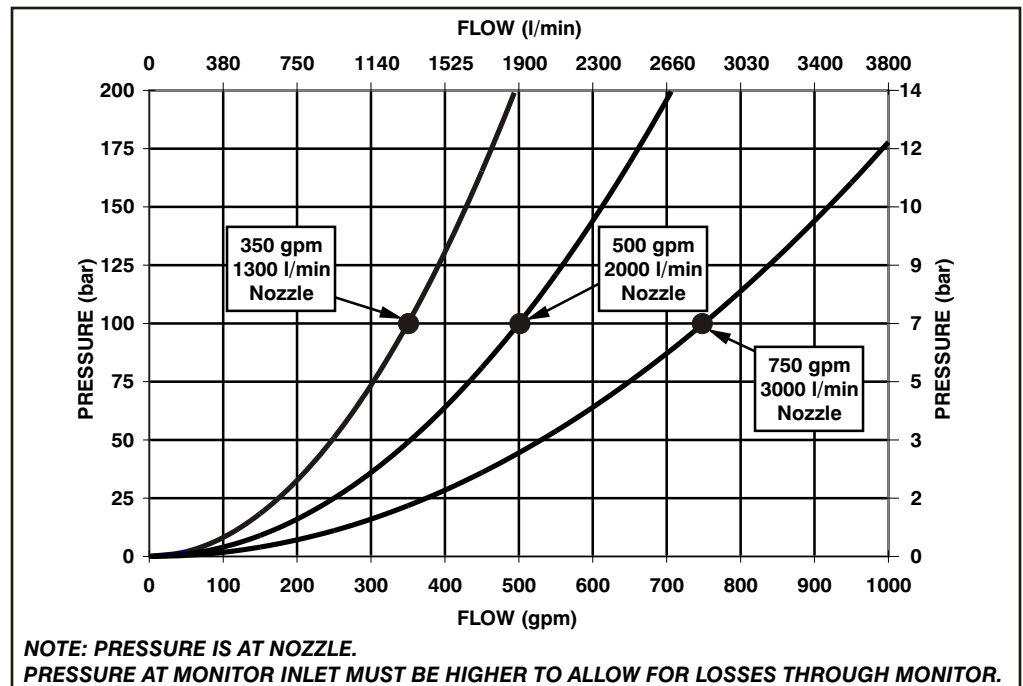


FIG 5.1 Flow Characteristics





## 6.0 MAINTENANCE AND REPAIRS

The Protector Station monitor requires no routine maintenance. All seals slide on plastic surfaces and require no periodic greasing. The swiveling joints use plastic sliding elements that also do not require grease. The Protector should be inspected annually and after each use.

In particular, check that:

- There are no leaks with valve off and while flowing.
- Valve handle moves freely between open and closed positions.
- Valve handle position indicator is functioning properly ('OFF' when horizontal, 'ON' when vertical).
- Swivels rotate while flowing at expected pressure and flow.
- Locking knobs loosen and tighten sufficiently.

### 6.1 SWIVEL INSERTS

If the force to swivel becomes excessive, it may be due to damage to the plastic swivel inserts. The inserts are replaced as follows:

- Turn off water.
- Remove the cotter pin and then the nut on the locking knob with a 1/2 inch (13 mm) socket.
- Remove the locking knob.
- Separate the joint by pivoting the clamp piece off of the flanged section.
- Pry out the swivel inserts.
- Clean away any dirt on flanges and clamps.
- Install new swivel inserts into clamp pieces.
- Reassemble joint. **Important: Do not allow any dirt or grit on flanges and swivel inserts.**

### 6.2 LOWER SWIVEL SEAL AND VALVE SEAT

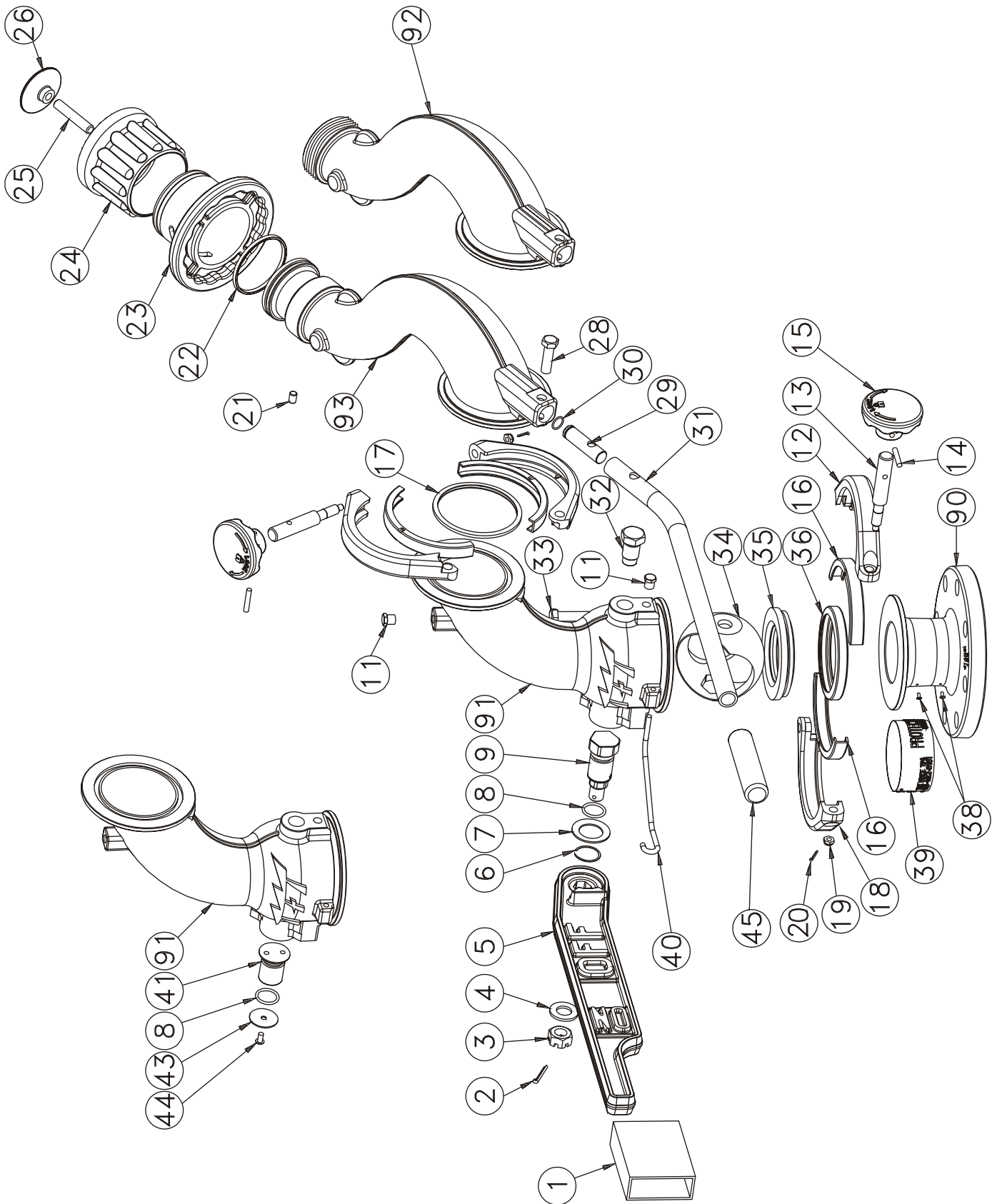
If the lower swivel joint leaks externally, or the valve does not fully shut off, then the lower swivel seal and/or valve seat may need to be replaced. To replace these parts:

- Separate the swivel joint by following the sequence in section 6.1.
- Pull out the valve seat and lower swivel seal.
- Inspect parts and replace with new parts as needed.
- Apply grease to surface of seal.
- Snap black seal in groove on white valve seat.
- Insert assembly into monitor white end first.

### 6.3 UPPER SWIVEL SEAL

If the upper swivel leaks, then the upper swivel seal may need to be replaced. To replace the upper swivel seal:

- Separate the swivel joint by following the sequence in section 6.1.
- Inspect the seal and sealing surfaces.
- Apply grease to surface of seal.
- Replace damaged parts as needed.



# 7.0 DRAWINGS AND PARTS LIST

REF#	BRASS PART #	ALUM PART #	QTY.	DESCRIPTION
90	Z410B	Z410A	1	3" ANSI 150
	Z415B	Z415A		4" ANSI 150
	Z520B	Z520A		4" ANSI 300
	Z525B	Z525A		DN80, PN16
	Z530B	Z530A		DN100, PN16
91	Z210B	Z210A	1	Bell
92	Z310BBJ	Z310ABJ	1	Exit, 2 1/2 BSP
	Z310BIJ	Z310AIJ		Exit, 2 1/2 NPSH
	Z310BNJ	Z310ANJ		Exit, 2 1/2 NH
93	Z320B	Z320A	1	Exit Nozzle

**NOTE: SPECIFY COLOR WHEN ORDERING  
AMERICAN FIRE ENGINE RED OR RAL 3000**

REF#	PART #	QTY	DESCRIPTION
1	Z285	1	Slide
2	VP156X1.50	1	5/32 x 1 1/2 Cotter Pin 18-8 SS
3	VT75-10SF	1	3/4 -10 Slot Fin Hex Nut
4	VW1.5X81-134	1	3/4" Stainless Washer
5	Z280	1	Valve Handle
6	V4235	1	VS-118-S02 Smalley Ring
7	VM4900	1	Belleville Spring
8	VO-214	1	O-Ring-214
9	Z265	1	Trunnion
11	VFHP2M	2	1/4" Hex Head Plug
12	Z220	2	Clamp
13	Z240	2	Locking Bolt
14	VP250X1.375H	2	1/4 x 1 3/8 HDP Spirol Pin
15	Z245	2	Locking Knob
16	Z225	4	Swivel Insert
17	Z230	1	Upper Swivel Seal
18	Z221	2	Clamp Threaded
19	VT31-18 CNT	2	5/16-18 Castile Nut
20	VP063X.50	2	1/16 x 1/2 cotter pin
21	Z660	1	Cam Pin
22	Z330	1	Shaper Seal
23	Z505	1	Shaper
24	Z700	1	Bumper
25	VT50-13SD2.7	1	1/2 -13 x 2 3/4 Long Stud
26	Z565	1	Baffle 350 GPM
	Z566		Baffle 500 GPM
	Z567		Baffle 750 GPM
28	VT50-13HX2.7	1	1/2-13x2 3/4 Hex Bolt Threaded
29	Z316	1	Elevation Handle Nut
30	VO-016	1	O-Ring-016
31	Z315	1	Elevation Handle
32	Z260	1	Trunnion
33	VT50-13HX1.7	1	1/2-13x1 3/4 Hex Bolt Threaded
34	Z250	1	Valve Ball
35	Z270	1	Rear Valve Seat
36	Z275	1	Lower Seal
38	VT06E32BH250	2	6-32 x 1/4 Button Head
39	ZL100	1	Protector - Name Plate
	ZL100-F		Petro - Jet, Name Plate
40	Z286	1	Slide Link
41	Z261	1	Plug
43	X752	1	2.5" Clapper Washer
44	VT25-28BH500	1	1/4 -28 x 1/2 BH Cap Screw
45	Z317	1	Handle Grip

## 8.0 WARRANTY

Task Force Tips, Inc., 2800 East Evans Avenue, Valparaiso, Indiana 46383-6940 USA ("TFT") warrants to the original purchaser of its Protector Station Monitor and other equipment ("equipment"), and to anyone to whom it is transferred, that the equipment shall be free from defects in material and workmanship during the five (5) year period from the date of purchase.

TFT's obligation under this warranty is specifically limited to replacing or repairing the equipment (or its parts) which are shown by TFT's examination to be in a defective condition attributable to TFT. To qualify for this limited warranty, the claimant must return the equipment to TFT, at 2800 East Evans Avenue, Valparaiso, Indiana 46383-6940 USA, within a reasonable time after discovery of the defect. TFT will examine the equipment. If TFT determines that there is a defect attributable to it, it will correct the problem within a reasonable time. If the equipment is covered by this limited warranty, TFT will assume the expenses of repair.

If any defect attributable to TFT under this limited warranty cannot be reasonably cured by repair or replacement, TFT may elect to refund the purchase price of the equipment, less reasonable depreciation, in complete discharge of its obligations under this limited warranty. If TFT makes this election, claimant shall return the equipment to TFT free and clear of any liens and encumbrances.

This is a limited warranty. The original purchaser of the equipment, any person to whom it is transferred, and any person who is an intended or unintended beneficiary of the equipment, shall not be entitled to recover from TFT any consequential or incidental damages for injury to person and/or property resulting from any defective equipment manufactured or assembled by TFT. It is agreed and understood that the price stated for the equipment is in part consideration for limiting TFT's liability. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above may not apply to you.

TFT shall have no obligation under this limited warranty if the equipment is, or has been, misused or neglected (including failure to provide reasonable maintenance) or if there have been accidents to the equipment or if it has been repaired or altered by someone else.

**THIS IS A LIMITED EXPRESS WARRANTY ONLY. TFT EXPRESSLY DISCLAIMS WITH RESPECT TO THE EQUIPMENT ALL IMPLIED WARRANTIES OF MERCHANT ABILITY AND ALL IMPLIED WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE. THERE IS NO WARRANTY OF ANY NATURE MADE BY TFT BEYOND THAT STATED IN THE DOCUMENT.**

This limited warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

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